

**STATE OF
WEST VIRGINIA
OFFICE OF MINERS'
HEALTH, SAFETY &
TRAINING**

**DOUG CONAWAY, DIRECTOR
C. A. PHILLIPS, DEPUTY DIRECTOR**

OPERATION OF MANTRIPS AND APPROACHING MOBILE EQUIPMENT

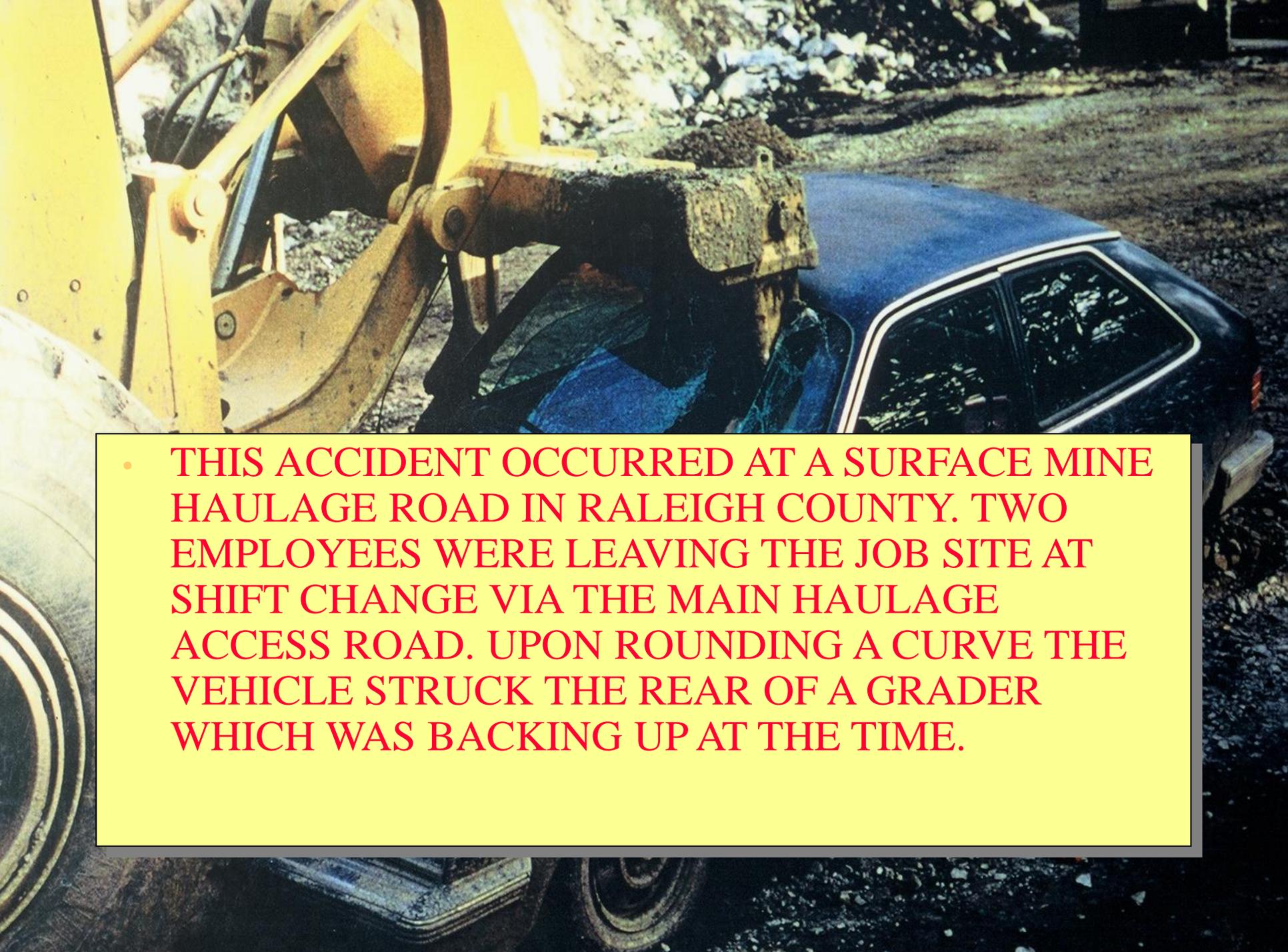
- JOHN MEADOWS,
• SURFACE INSPECTOR
- HENRY M. ARMENTROUT,
• SURFACE INSPECTOR
- BRENDA MEDINA,
• OFFICE ASSISTANT III
- JOHN SCOTT,
• ELECTRICAL INSPECTOR

•HAZARD ALERT

- In the past few years, there have been several serious accidents and fatalities in the mining industry involving heavy equipment and smaller vehicles or workers on the ground. Basically, these accidents can be attributed to the visibility restrictions of the operators of heavy equipment and/or the lack of clear communication by all workers before entering the work area of heavy equipment. Each of these accidents had specific facts and details that were contributing factors, but the two consistent factors were visibility restrictions and/or lack of clear communication.

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- **THIS INCIDENT OCCURRED AT A SURFACE MINES IN NICHOLAS COUNTY. THE MINE FOREMAN DID NOT ESTABLISH POSITIVE COMMUNICATION WITH THE OPERATOR OF THE ROCK TRUCK. THE FOREMAN ENTERED THE PIT AND PARKED DIRECTLY IN FRONT OF THE STOPPED TRUCK TO PICK UP EQUIPMENT CHECK LISTS. THE TRUCK MOVED FORWARD STRIKING THE PICKUP AND TRAPPING THE FOREMAN.**





- THIS ACCIDENT OCCURRED AT A SURFACE MINE HAULAGE ROAD IN RALEIGH COUNTY. TWO EMPLOYEES WERE LEAVING THE JOB SITE AT SHIFT CHANGE VIA THE MAIN HAULAGE ACCESS ROAD. UPON ROUNDING A CURVE THE VEHICLE STRUCK THE REAR OF A GRADER WHICH WAS BACKING UP AT THE TIME.

:THIS FATAL OCCURRED AT A SURFACE MINE IN LOGAN COUNTY. THE VICTIM WAS FATALLEY INJURED WHEN THE PICKUP HE WAS DRIVING WAS STRUCK WHEN IT ENTERED THE PATH OF A 630 E WABCO ROCK HAULAGE TRUCK.





**THIS DOUBLE FATAL
OCCURRED IN BOONE
COUNTY IN 2003. THE
MANTRIP WAS STRUCK
WHEN IT ENTERED THE
PATH OF A R190 EUCLID
DUMP TRUCK.**



17 11:55 AM



**This is a review of applicable
West Virginia Mining
Regulations and
recommendations to enhance
safety for persons in the
proximity of heavy equipment.**

•56-3-34.6

- **A.** On all active surface mines, a designated area shall be provided for parking of employees' vehicles.
- **B.** No vehicle or other conveyance used to transport persons to and from work areas at surface mines shall be overcrowded and all persons shall ride in a safe position.
- **C. (a)** All mantrips shall have ten (10) unit first aid kits and audible warning devices.
- **Recommendation (1)** Mantrips should be equipped with secured EMT-M boxes and a first aid station box. This will comply with **53-3-48.1** regarding the location of first aid stations and **56-3-53** regarding the location of emergency medical personnel equipment



LOCAL SCHOOLS

11





•56-3-34.3

- **(d)** Where required by the Director, trucks used for haulage of coal, men or supplies shall be equipped with two (2) way communication instruments
- **Recommendation (1)** The inspector should issue a non-assessed violation requiring two (2) way communication instruments be provided on all mantrips.

CB CHANNELS

- 5 DRILLS
- 31 COAL TRUCKS
- 32 DeMAG
- 35 5230
- 38 495 SHOVEL

**FAILURE TO USE
NUMBERED CALL
STATION TO IDENTIFY
YOUR LOCATION ON
THE HAUL ROAD WILL
WARRANT REMOVAL
FROM PROPERTY!**



- **56-3-34.3(b)** Supplies, materials, and other tools other than small hand tools shall not be transported with persons in vehicles unless such vehicles are specifically designed to make such transportation safe.
- **56-3-42.10(e)** Cabs of mobile equipment shall be kept free of extraneous materials and adequately ventilated.
- **56-3-42.3 (c)** Good housekeeping shall be practiced on all equipment.
- **56-3-42.8(c)** All doors on mobile equipment shall be maintained in good operating condition.



56-3-42.1(a) Immediately prior to the beginning of each working shift, all equipment except licensed vehicles subject to state highway inspection requirements shall be examined by the equipment operator or a mechanic if designated by the foreman in charge of the operation daily for safety defects. The person performing such examination shall record his findings in ink or indelible pencil on a form approved by the director; such form shall be given to the mine foreman or his assistant within four (4) hours after the beginning of the start of the working shift. The person performing the above examination shall sign the report form and the foreman receiving such form, shall initial upon receipt. A record of all above such examinations shall be maintained for thirty (30) days and made available to an authorized representative of the director and to the miners at the mine

EQUIPMENT OPERATOR'S PRE-SHIFT SAFETY CHECK LIST

Note: (fill out this sheet before starting shift)

JOB _____ DATE _____

EQUIPMENT TYPE AND NUMBER _____

SHIFT NO. _____

OK REPAIRS MADE REPAIRS REQUIRED
 CODES:

Excessive oil or hydraulic leaks	
Back Alarm	
Brakes: Foot	
Brakes: Parking	
Fire Extinguisher	
Lights	
Horn (Electric)	
Horn (Air)	
Windshield Wipers	
Glass: Windshield	
Glass: Door	
Grab-rails	
Steps	
Safety Guards	
Mirrors	
Seat Belts	
Tires	
Steering	
Coolant	
Other:	

Remarks: (Visual Inspection Of Machine For Any Other Mechanical Or Safety Defects)

Signatures:

Equipment Operator _____

Mine Foreman _____



56-3-26.3 Job assignments to any miner – When a job assignment is given to any miner that he has not performed in the recent past, such person inexperienced in the particular job assignment, shall be instructed in the hazards incident thereto and the law and regulations relevant thereto and the law and regulations relevant thereto prior to performing any duties in such new job assignment. When such job assignment includes the operation of equipment, the instruction shall include a supervised dry run. When the job assignment related to a plan in effect at the mine, the relevant portions of the plan shall be reviewed. A record shall be kept of such instruction.

•56-3-42.10

- (g) Equipment shall be operated only by persons trained in the use of and authorized to operate such equipment.
- **Recommendation (1)** The operation of mantrips should be limited to a few, competent operators. This enhances adequate equipment examinations, care, and operation of mantrips.



•56-3-34.5

- **(b)** Mobile equipment shall not be left unattended unless the brakes are set, the wheels shall be turned into a bank or berm, or shall be blocked, when such equipment is parked on a grade.
- **Recommendation (1)** Ditches or barricades should be constructed at ready lines/parking lots. Large haulage trucks should place the wheels of the truck into this safe guard when the truck is left unattended.



•56-3-42.7

- (g) All exhaust tail pieces shall be positioned and properly maintained to prevent carbon monoxide and other toxic fumes from entering an operator's compartment.
- **Recommendation (1)** This inspection should be conducted prior to each working shift. This is important during operation and many surface mine crews/spreads use the mantrip as a dinner hole. This is particularly dangerous during cold weather when the engine idles to provide heat to the mantrip.



•56-3-43.1

- **(d)** Illumination sufficient to provide safe working conditions shall be provided in and on all surface structures, paths, walkways, switch panels, loading and dumping sites, work areas and parking areas.
- **Recommendation (1)** Portable light plants should be used at ready lines/parking areas.

- **Recommendation (2)** Cap lights or hand held flashlights should be used to walk/travel in unlighted areas and used to assist the operator to conduct an adequate equipment examination.
- **Recommendation (3)** Reflective clothing should be worn by all miners.
- **Recommendation (4)** A roof mounted strobe light/flashing light or other approved devices should be installed and maintained on all mantrips
- **Recommendation (5)** Emergency stations that are portable and contain heavy wire ropes, come alongs, jaws of life, extra first aid supplies, etc. should be furnished and maintained at active surface mines.



**EMERGENCY
TRAILER**

56-3-34.4(a) Haulage truck operators shall make sure their truck path is unobstructed, especially when starting or moving the truck forward or backward.

56-34-.4(b) Radio or visual contact shall be made with an operator of a haulage truck to insure that it is safe to approach the truck.

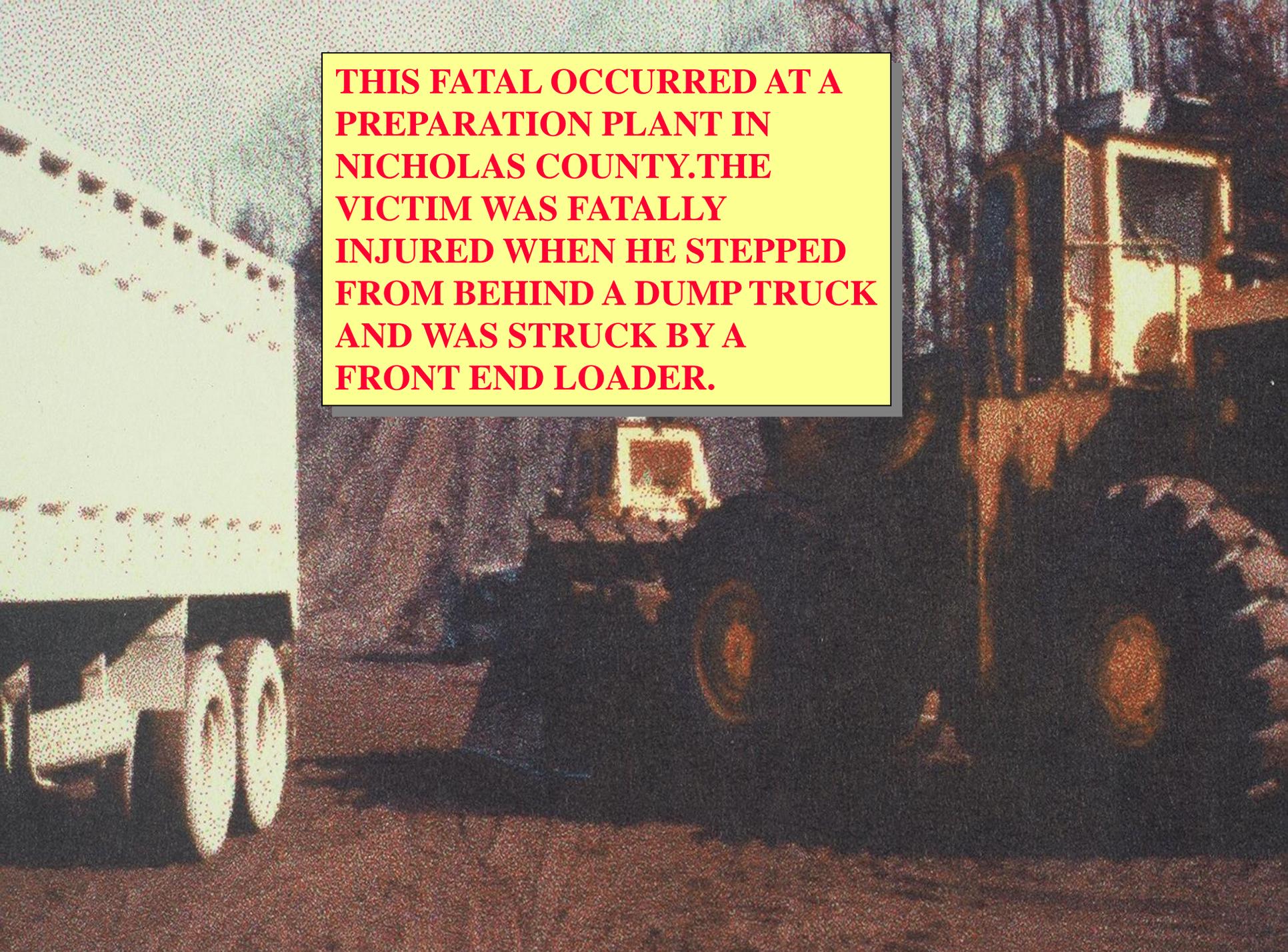


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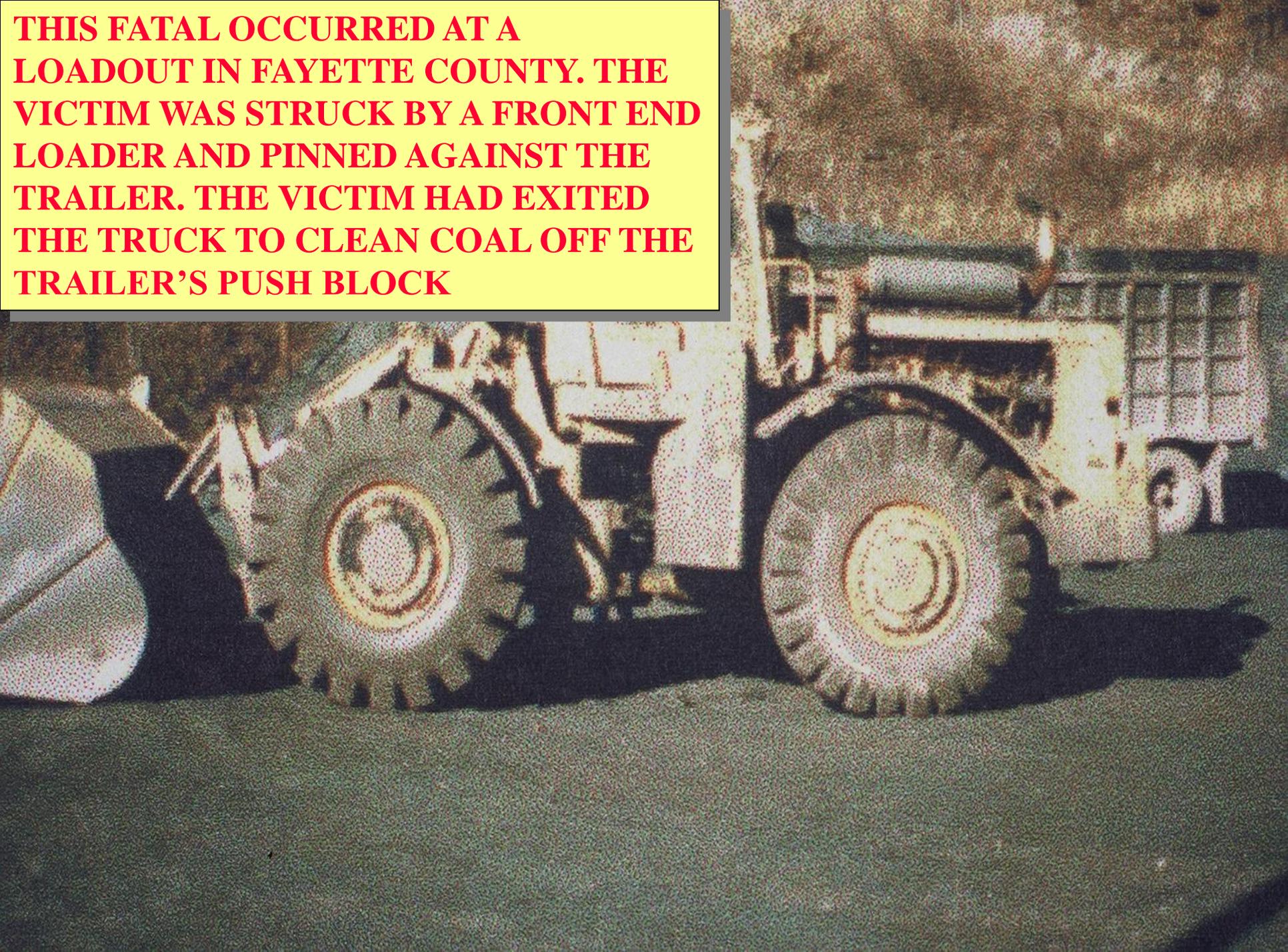
- Mirrors on surface operated equipment.
- **12.1** When required by authorized representatives of the Director to enhance safe operation, adequate mirror(s) will be provided on surface mine equipment that operates at surface mines, surface areas of underground mines, preparation plants and loadouts.
- Mirror(s) provided on equipment by manufacturers of said equipment shall be deemed adequate and in compliance with the regulations.

**THIS FATAL OCCURRED AT A
PREPARATION PLANT IN
NICHOLAS COUNTY.THE
VICTIM WAS FATALLY
INJURED WHEN HE STEPPED
FROM BEHIND A DUMP TRUCK
AND WAS STRUCK BY A
FRONT END LOADER.**





**THIS FATAL OCCURRED AT A
LOADOUT IN FAYETTE COUNTY. THE
VICTIM WAS STRUCK BY A FRONT END
LOADER AND PINNED AGAINST THE
TRAILER. THE VICTIM HAD EXITED
THE TRUCK TO CLEAN COAL OFF THE
TRAILER'S PUSH BLOCK**







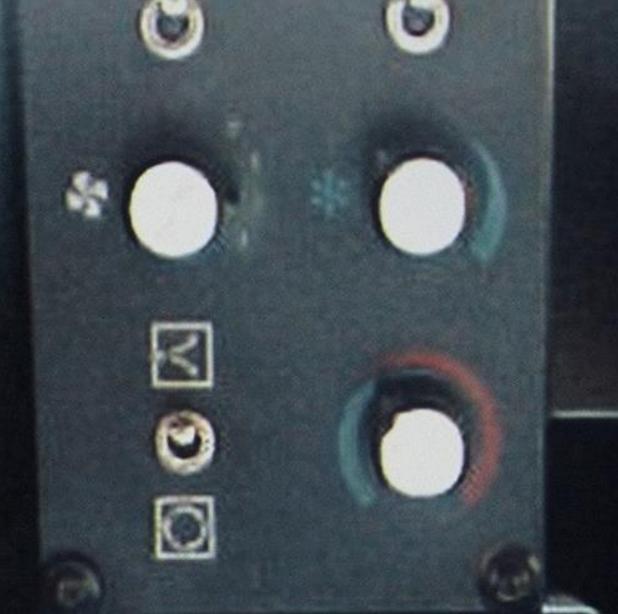
THIS INCIDENT OCCURRED AT A SURFACE MINE IN WEBSTER COUNTY. THE GREASE TRUCK OPERATOR WAS ATTEMPTING TO SERVICE A DOZER THAT WAS OPERATING ON A FILL AREA. THE GREASE TRUCK OPERATOR POSITIONED THE TRUCK APPROXIMATELY 30 FEET FROM THE REAR OF THE DOZER AND ATTEMPTED TO CONTACT THE DOZER OPERATOR BY RADIO. AS THE GREASE TRUCK OPERATOR WAS SLIGHTLY BENT OVER TRYING TO LOCATE THE RADIO, THE DOZER BACKED INTO THE TRUCK. THE GREASE TRUCK OPERATOR EXITED THE OPEN WINDOW TO AVOID INJURY.

Recommendation (1) All persons shall establish direct, positive two-way communications (either audible or visible) before entering such proximity as to be endangered by equipment.





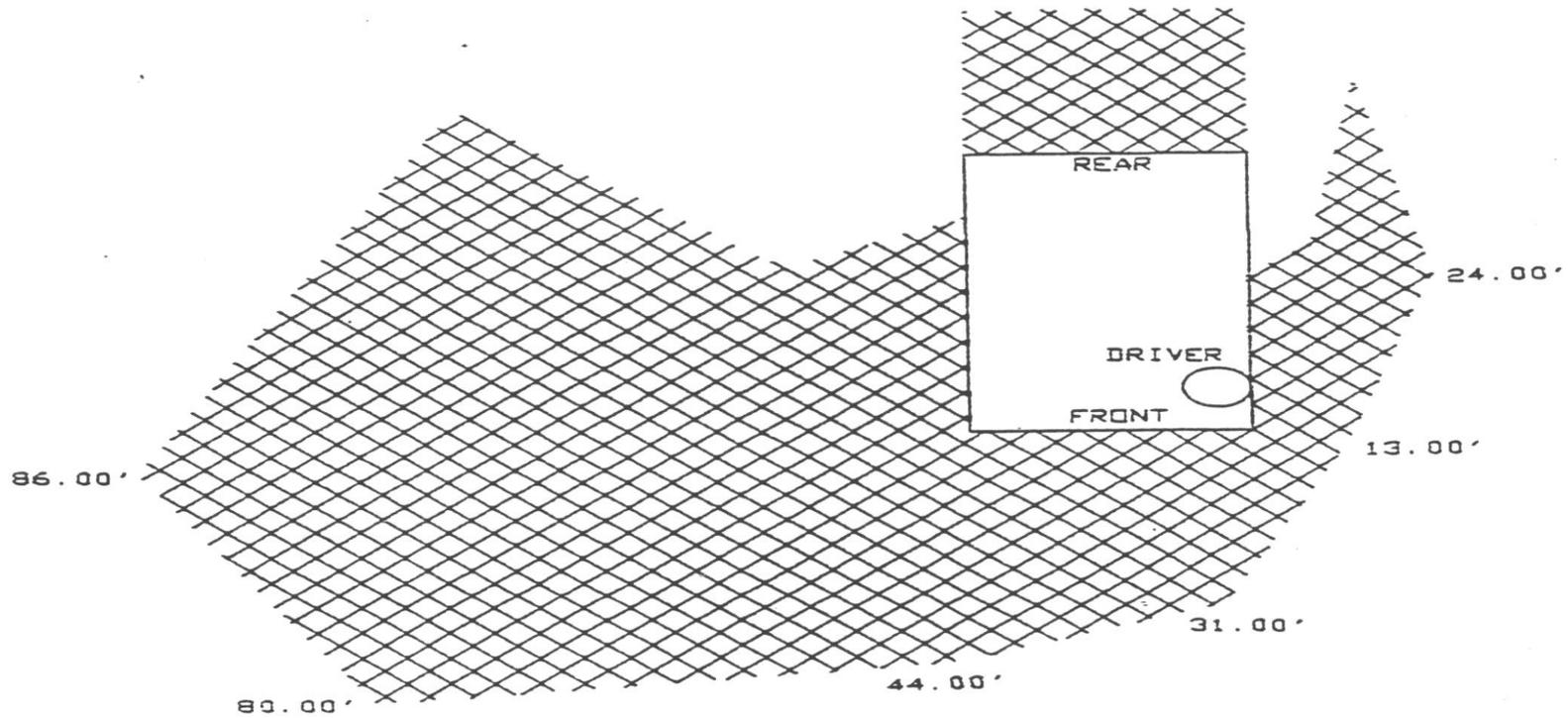
Recommendation (2) Cameras, monitors, blind area viewers and/or mirrors should be installed and maintained on all large haulage trucks to enhance visibility around mobile equipment.



Buckle
Your Seat
Larger Than
Your Head



- **Recommendation (3)** Warning devices such as infrared light, ultrasonic waves, radar, or other effective devices to detect objects or persons around mobile equipment, and sounds an audible alarm when a person or object is detected should be installed and maintained. These devices should:
 - (a) Have a sensing area of a sufficient size that would allow endangered persons adequate time to get out of the danger zone
 - (b) Give audible or visual alarms inside the operator's cab when a person or object is detected in the sensing area.



BLIND SPOTS OF A 190 WABCO TRUCK

- **Recommendation (4)** All large haulage trucks should be identified by clearly visible numbers to enhance positive communication.
- **Recommendation (5)** All large haulage trucks should use standard signaling procedures and devices before moving the truck after being stopped for a period of time. One (1) horn blast – forward and two (2) horn blasts – reverse.



•56-3-42.2

. Operation of shovel, draglines,
tractors, backhoes, loaders, etc





(a) Equipment operators shall cease operating their equipment when any person is within such proximity as to be endangered.

(b) Operators of shovels, draglines, and backhoes shall sound a signal distinguishable from the surrounding noise level such as a whistle, bell, horn or other approved device, before moving forward or backward, and all persons not in the clear shall respond immediately.

- **(d)** When the equipment operator is present, men shall notify him before getting on or off his equipment.
- **(e)** Persons shall not be permitted in the immediate vicinity of shovels, draglines, and backhoes unless in the line of duty.
- **(h)** The operator of shovels, draglines, and backhoes shall have a general knowledge of the location of his oiler at all times

